Roll No. ..... Total Pages : 2

BT-3/D-12 **8306**

ANALOG COMMUNICATION

Paper—ECE-203E

Time Allowed : 3 Hours] [Maximum Marks : 100

Note : Attempt **five** questions in all, selecting at least **one** question from each Unit. All questions carry equal marks.

UNIT–I

1. (a) Determine expression for noise figure of cascaded amplifier and write final expression for multistage amplifier. 10

   (b) Find overall noise figure of a three stage cascaded amplifier, each stage having a power gain of 20 dB and noise figure of 12 dB. 5

   (c) Give classification of external noise. 5

2. (a) Two resistors R_1 and R_2 at absolute temperature T_1 and T_2 are connected in series to form a white noise source. Find the equivalent noise temperature Teq. 10

   (b) Explain noise temperature in detail. 10

UNIT–II

3. (a) Explain, how collector modulation method is used for AM generation. 10

   (b) Explain various methods used for generating SSB-SC signal. 10

4. (a) Explain synchronous detection method for demodulating a DSB-SC signal. 10

   (b) Explain diode detector demodulation technique for AM system. 10

UNIT–III

5. (a) Define modulation index for a FM system and show how it effects the spectrum of FM signal. 10

   (b) Explain Varactor diode method for FM generation. 10

6. (a) Explain preemphasis and deemphasis in a FM system using proper diagram. Also derive expression for SNR improvement using preemphasis. 10

   (b) Explain slope detector method for FM demodulation. 10

UNIT–IV

7. (a) Write note on Armstrong FM transmitter. 10

   (b) Explain in detail sensitivity and selectivity of AM receivers. 10

8. (a) Write note on superheterodyne receiver. 10

   (b) What is image frequency problem related with superheterodyne receiver and how it can be removed ? Elaborate. 10